ctffind4 problems analyzing micrographs recorded with phase plate

Mon, 10/22/2018 - 05:45

#1

k.barragan

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Hi,

I have a question concerning ctffind-4.1.10.

I'm using ctffind4 to analyze micrographs recorded with a phase plate.

But I get funny results:

1. I get negative phase shift although I limit the phase shift from 0 to 2.0

2. I get also phase shifts which are far beyond the borders I defined in the input file (phase shift 2.7 rad: input file limited to 2.0)

Is this a known behaviour for ctffind4 or am I doing something wrong?

Thanks,

Kristina

File:
📄 img1.mrc
📄 img2.mrc
🖼 Test2_input.png

alexis

Hi Kristina,

While what you are describing is a bit unusual and may suggest something suboptimal about either the input image, the input parameters, or/and possibly the program, it is not completely unexpected. This is because the search for parameter values proceeds, broadly speaking, in two steps: (1) an exhaustive (grid) search withth the min, max and step parameters you specified. This first step cannot find results outside of the range you specify. But step (2) is a local minimization based on gradient descent starting from the end point of step 1. This gradient descent may well lead outside of the boundaries you specified.

I hope this helps. If you would like, I'd be happy to look at a typical image from your dataset which shows this behavior. If so, please upload & share an image and copy/paste all your inputs to ctffind4.

Cheers,
Alexis

Tue, 11/20/2018 - 07:51 <u>(Reply to #2)</u>

k.barragan

Hi Alexis,

I have uploaded two micrographs and a picture with the settings I have used for ctffind4.

It would be great if you could have a look.

Thanks,

Kristina

alexis

Hi Kristina,

I'm sorry it took so long, but I finally took a look at your images.

They have beautiful Thon rings but for some reason I'm so far unable to find CTF parameters that fit them well.

Are you confident of the values for Cs (0.1 mm) and voltage (300 kV) you have been using?

I have tried with other software packages (sparx, eman2, gctf1.06) and have had no luck so far finding good parameters. So I'm stumped for now. Have you had any luck getting good parameters for them?

Cheers,
Alexis

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